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(54) **HANDSET BASED DYNAMIC PARENTAL CONTROLS**

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H04W 12/00 (2009.01)

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(58) **Field of Classification Search** ..... None
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

7,302,272	B2 *	11/2007	Ackley	455/414.1 X
7,587,198	B2 *	9/2009	Miller	455/414.2
2005/0164687	A1	7/2005	DiFazio	
2005/0282589	A1	12/2005	Barneah	
2006/0121951	A1	6/2006	Perdomo et al.	
2006/0133414	A1	6/2006	Luoma et al.	
2006/0293057	A1 *	12/2006	Mazerski et al.	455/445
2008/0146211	A1 *	6/2008	Mikan et al.	455/419

OTHER PUBLICATIONS

Bluetooth Specification Version 1.1, Part K:3 Cordless Telephony Profile, Feb. 22, 2001.

Bluetooth Specification Version 1.1, Part F:3 Telephony Control Protocol Specification TCS Binary, Feb. 22, 2001.

Steve Karty, Bluetooth Personal Area Network Technology, Office of the manager National Communications System, Technology Notes, Technology and Programs Division vol. 7, No. 3, Jul. 2000.

Mobileman, IST-2001-38113, Mobile Metropolitan Ad hoc Networks, Dec. 2002.

Mobile Office Technology, "How to Use a Bluetooth Enabled Cell Phone", http://mobileoffice.about.com/od/typesofaccessavailable/ht/bluetooth..., printed from the world wide web on Jan. 17, 2007.

Brian McConnell, "SMS Relay—An Idea for Fault-Tolerant Communications", O'Reilly Wireless DevCenter, Sep. 28, 2001.

Claudio Lavecchia et al., "Real Life Experience of Cooperation Enforcement Based on Reputation (CORE) for MANETs".

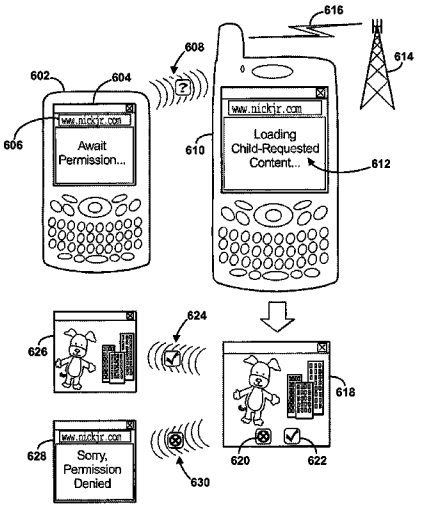
(Continued)

Primary Examiner—Philip J Sobutka

(57) **ABSTRACT**

A parent mobile station is provided that enables real-time parental control over communications with an associated child mobile station. The parent mobile station receives notification of attempted inbound and outbound calls with third parties to and from the child mobile station, or of requests from the child mobile station to retrieve content from a content provider. In response to the notifications, the parent mobile station determines whether or not to permit the inbound and outbound calls or the retrieval of content. If permitted, communications with the child mobile station are routed through the parent mobile station, which itself communicates over a wireless telecommunications network. If not permitted, the parent mobile station does not relay such communications. The child mobile station preferably communicates with the parent mobile station using a wireless local area network (WLAN) or Bluetooth protocol and is preferably incapable of defeating the parental controls with a direct connection to the wireless telecommunications network.

19 Claims, 7 Drawing Sheets

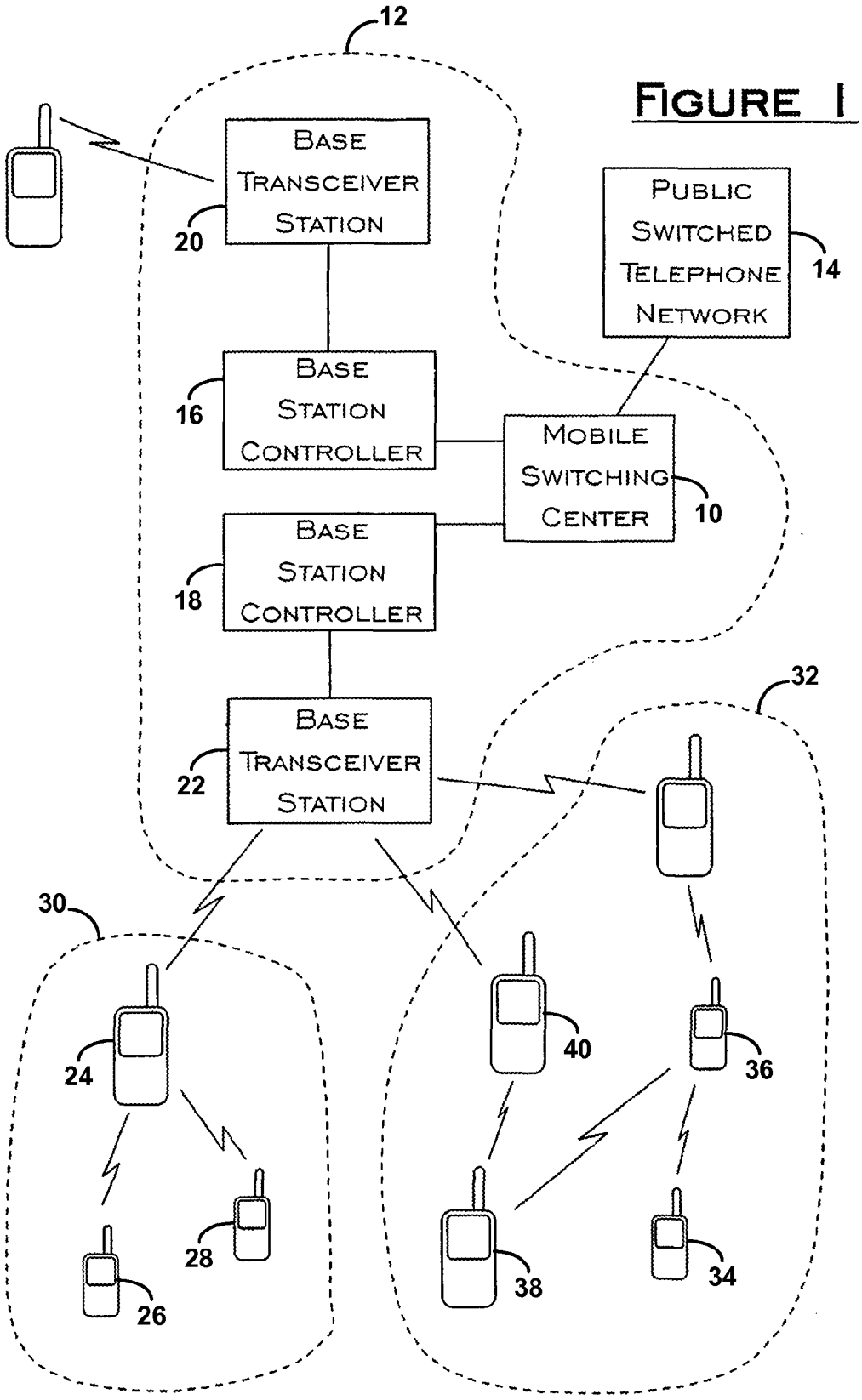


OTHER PUBLICATIONS

Planet Networking & Communication, "SIP Proxy Server", 2005.
Planet Networking & Communication, SIP-50 SIP Proxy Server User's Manual, Rev: 1.0 (May, 2005).
Durga Pandey et al., "Voice Mesh Progress Report", Viral Communications MIT Media Lab, Nov. 18, 2005.
Durga Pandey et al., "Fluid Voice", Viral Communications MIT Media Lab, Jan. 18, 2006.
Mobileman IST-2001-38113, "MobileMAN Presentation", Mobile Metropolitan Ad hoc Networks, Jul. 2005.
R. Bernasconi et al., "Experiments with an enhanced MAC architecture for multi-hop wireless networks", MobileMAN project.
Nicolas Boulicault et al., "Experiments of Ana4: An Implementation of a 2.5 Framework for Deploying Real Multi-hop Ad hoc and mesh Networks".
Marc Heissenbuttel et al., "GNU/Linux Implementation of a Position-based Routing Protocol".
Minmin Tu et al., "Implementation Strategies for a Secure and Efficient Multi-hop MANET Platform".
Francesca Cuomo et al., "A linux based Bluetooth scatternet formation kit: from design to performance results".
Franca Delmastro et al., "An Experimental Study of P2P Group-Communication Applications in Real-World MANETs".
Alan Lim et al., "A Comparative Study of Cooperative Algorithms for Wireless Ad Hoc Networks".
Evgeny Osipov et al., "A Path Density Protocol for MANETs".
Christian Rohner et al., "Interactions between TCP, UDP and Routing Protocols in Wireless Multi-hop Ad hoc Networks".
Marina Petrova et al., "Hop of No Return: Practical Limitations of Wireless Multi-Hop Networking".
Wolfgang Kieβ et al., "Thoughts on Mobile Ad-hoc Network Testbeds".
Peter Barron et al., "Experiences Deploying an Ad-hoc Network in an Urban Environment".
Luigi lannone et al., "MeshDV: A Distance Vector mobility-tolerant routing protocol for Wireless Mesh Networks".
Claudia Brazzola, "Social networks, novel communication applications and needs in mobile contexts".
George Roussos, "On the Dimensionality of Wireless Connectivity Traces".
Marco Conti et al., "Cross-Layer Support for Group-Communication Applications in MANETs".
R. Bruno et al., Experimenting a Layer 2-based Approach to Internet Connectivity for Ad Hoc Networks.
Nicolas Boulicault et al., "Demo of Ana4: an Hybrid Local Area Ad hoc Network Architecture".
Pan Hui et al., "Haggle Architecture and Demo of its Real World Implementations".
Martin Nielsen, "Demo of residual bandwidth estimation in an 802.11 ad hoc network".
Cyclop3 Internet Filtering Proxy, "User Guide," printed from the World Wide Web on Mar. 1, 2007.
PC Chaperone by Precipice Softward, "PC Chaperone Features," 2007.
Net Orbit—Network Supervision Software, "Net Orbit—User Guide," 2007.
[Content] watch Internet Protection, "ContentProtect Professional Suite Administrator's Guide," Dec. 2006.
[Content] watch Internet Protection, "Net Nanny Home Suite User Guide," Feb. 2007.

* cited by examiner

FIGURE 1


12
BASE TRANSCEIVER STATION
20
PUBLIC SWITCHED TELEPHONE NETWORK
14
BASE STATION CONTROLLER
16
MOBILE SWITCHING CENTER
10
BASE STATION CONTROLLER
18
BASE TRANSCEIVER STATION
22
32
30
24
26
28
40
36
38
34

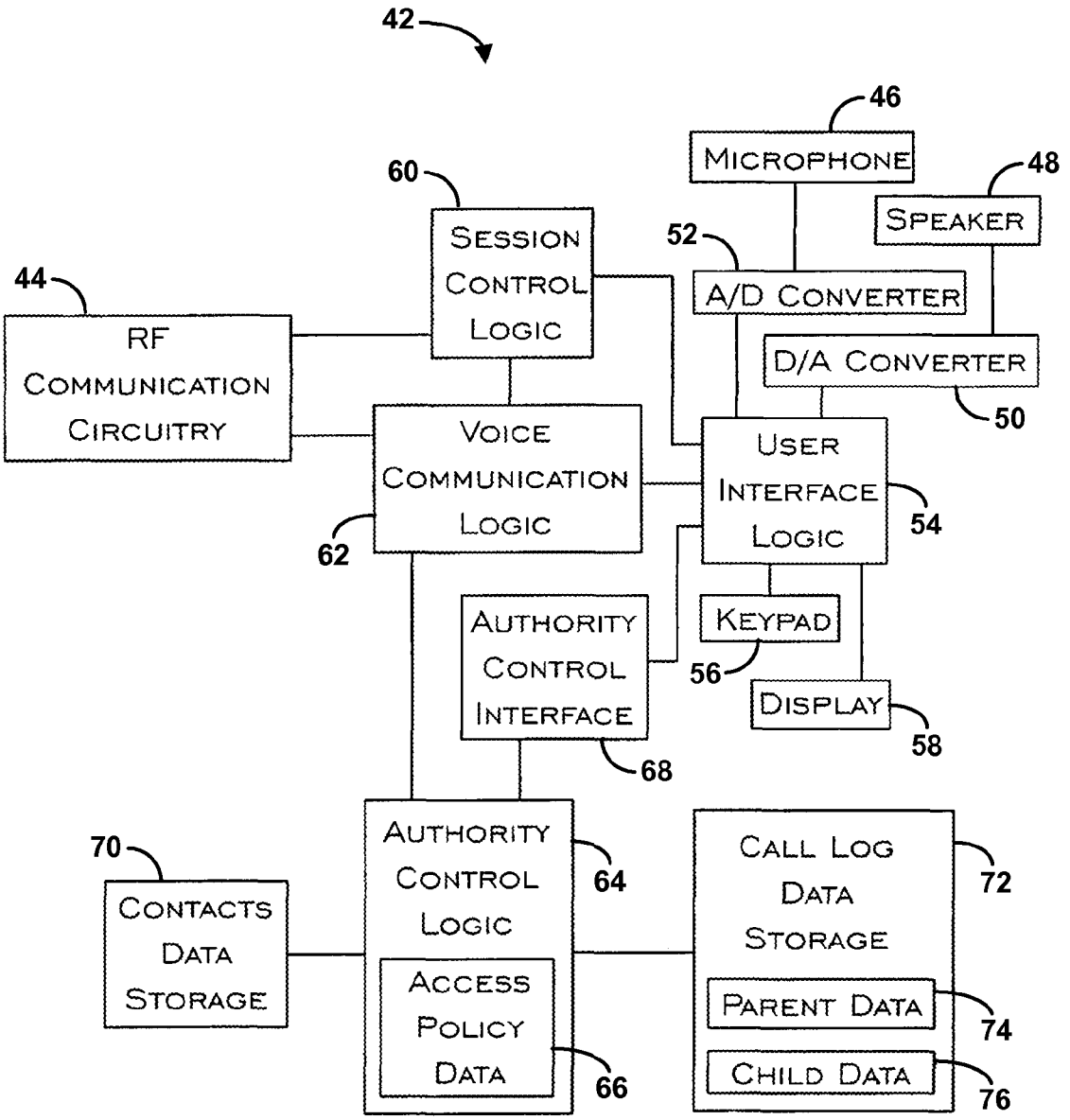

42
46
MICROPHONE
48
SPEAKER
60
SESSION CONTROL LOGIC
52
A/D CONVERTER
44
RF COMMUNICATION CIRCUITRY
D/A CONVERTER
50
VOICE COMMUNICATION LOGIC
USER INTERFACE LOGIC
54
62
AUTHORITY CONTROL INTERFACE
KEYPAD
56
DISPLAY
58
68
70
AUTHORITY CONTROL LOGIC
64
CALL LOG DATA STORAGE
72
CONTACTS DATA STORAGE
ACCESS POLICY DATA
66
PARENT DATA
74
CHILD DATA
76

FIGURE 2

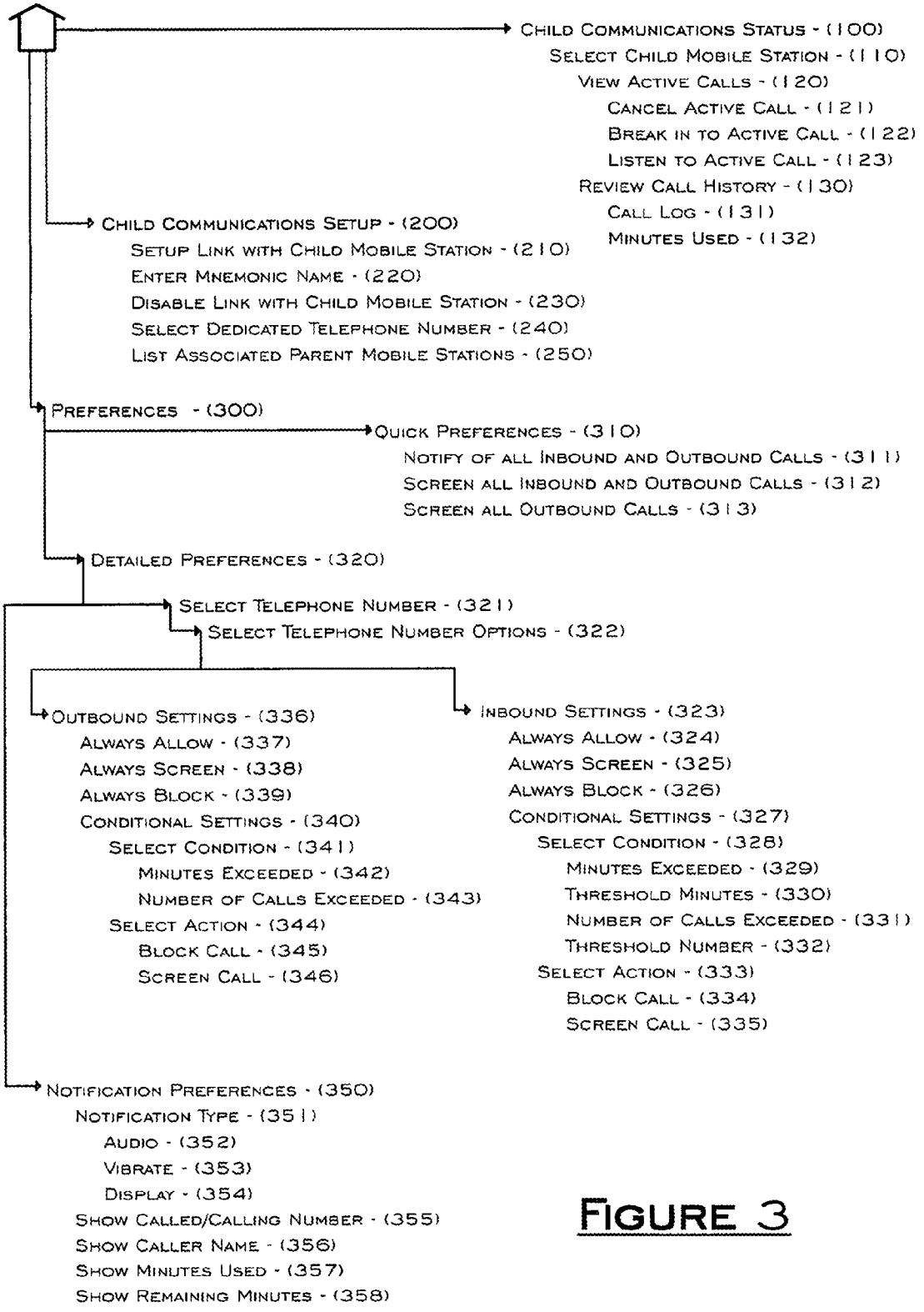

Child Communications Status - (100)
Select Child Mobile Station - (110)
View Active Calls - (120)
Cancel Active Call - (121)
Break in to Active Call - (122)
Listen to Active Call - (123)
Review Call History - (130)
Call Log - (131)
Minutes Used - (132)
Child Communications Setup - (200)
Setup Link with Child Mobile Station - (210)
Enter Mnemonic Name - (220)
Disable Link with Child Mobile Station - (230)
Select Dedicated Telephone Number - (240)
List Associated Parent Mobile Stations - (250)
Preferences - (300)
Quick Preferences - (310)
Notify of all Inbound and Outbound Calls - (311)
Screen all Inbound and Outbound Calls - (312)
Screen all Outbound Calls - (313)
Detailed Preferences - (320)
Select Telephone Number - (321)
Select Telephone Number Options - (322)
Outbound Settings - (336)
Always Allow - (337)
Always Screen - (338)
Always Block - (339)
Conditional Settings - (340)
Select Condition - (341)
Minutes Exceeded - (342)
Number of Calls Exceeded - (343)
Select Action - (344)
Block Call - (345)
Screen Call - (346)
Inbound Settings - (323)
Always Allow - (324)
Always Screen - (325)
Always Block - (326)
Conditional Settings - (327)
Select Condition - (328)
Minutes Exceeded - (329)
Threshold Minutes - (330)
Number of Calls Exceeded - (331)
Threshold Number - (332)
Select Action - (333)
Block Call - (334)
Screen Call - (335)
Notification Preferences - (350)
Notification Type - (351)
Audio - (352)
Vibrate - (353)
Display - (354)
Show Called/Calling Number - (355)
Show Caller Name - (356)
Show Minutes Used - (357)
Show Remaining Minutes - (358)

FIGURE 3

FIGURE 4

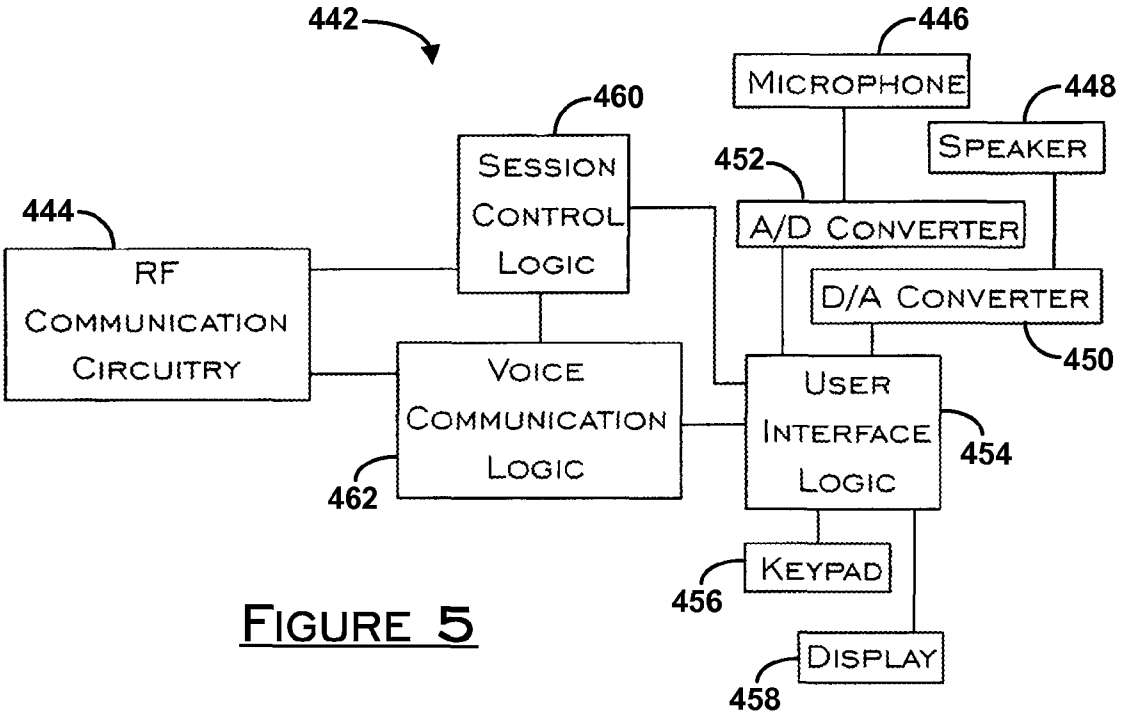


FIGURE 5

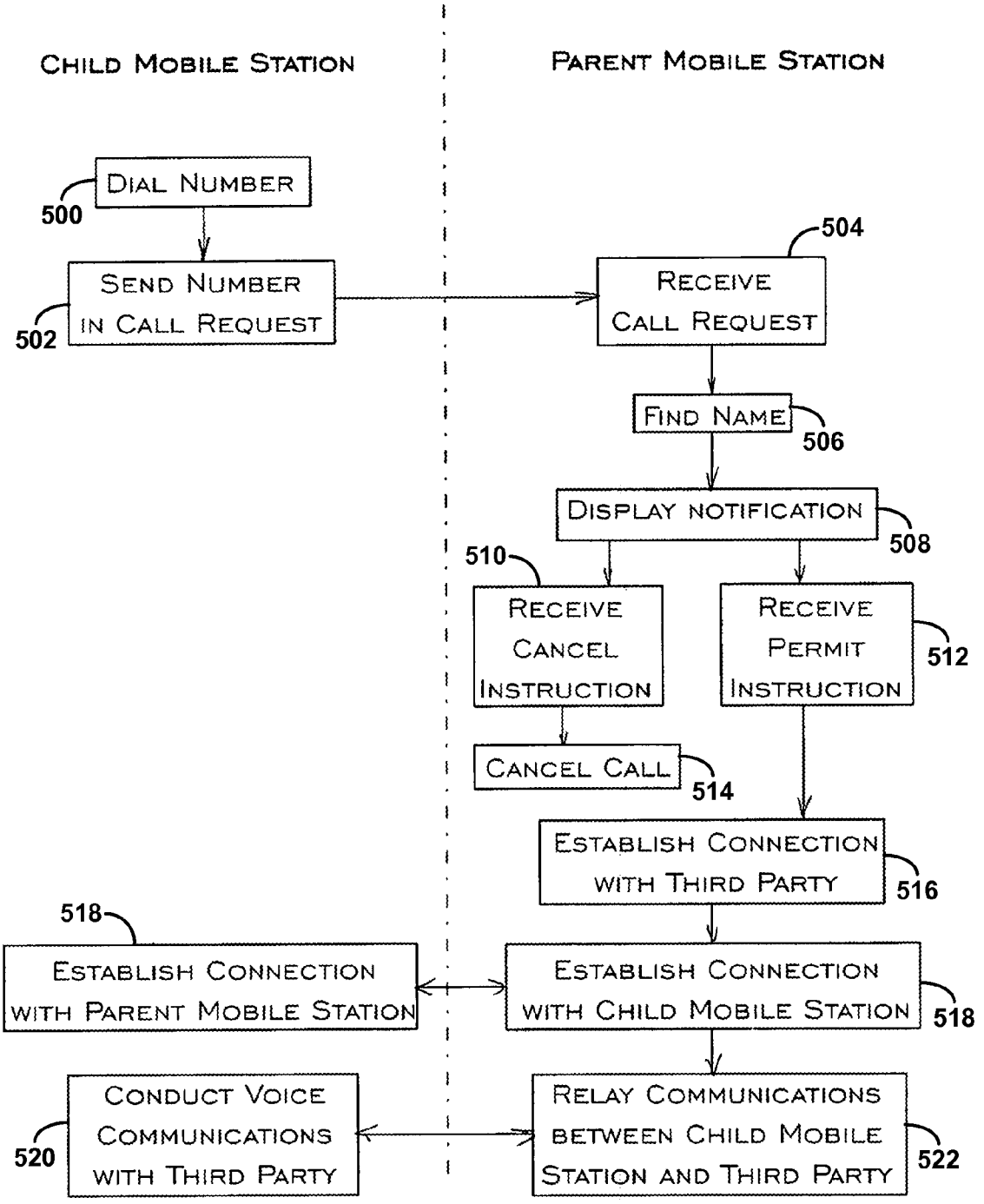

CHILD MOBILE STATION
PARENT MOBILE STATION
DIAL NUMBER
500
SEND NUMBER IN CALL REQUEST
502
RECEIVE CALL REQUEST
504
FIND NAME
506
DISPLAY NOTIFICATION
508
510
RECEIVE CANCEL INSTRUCTION
RECEIVE PERMIT INSTRUCTION
512
CANCEL CALL
514
ESTABLISH CONNECTION WITH THIRD PARTY
516
518
ESTABLISH CONNECTION WITH PARENT MOBILE STATION
ESTABLISH CONNECTION WITH CHILD MOBILE STATION
518
CONDUCT VOICE COMMUNICATIONS WITH THIRD PARTY
520
RELAY COMMUNICATIONS BETWEEN CHILD MOBILE STATION AND THIRD PARTY
522

FIGURE 6

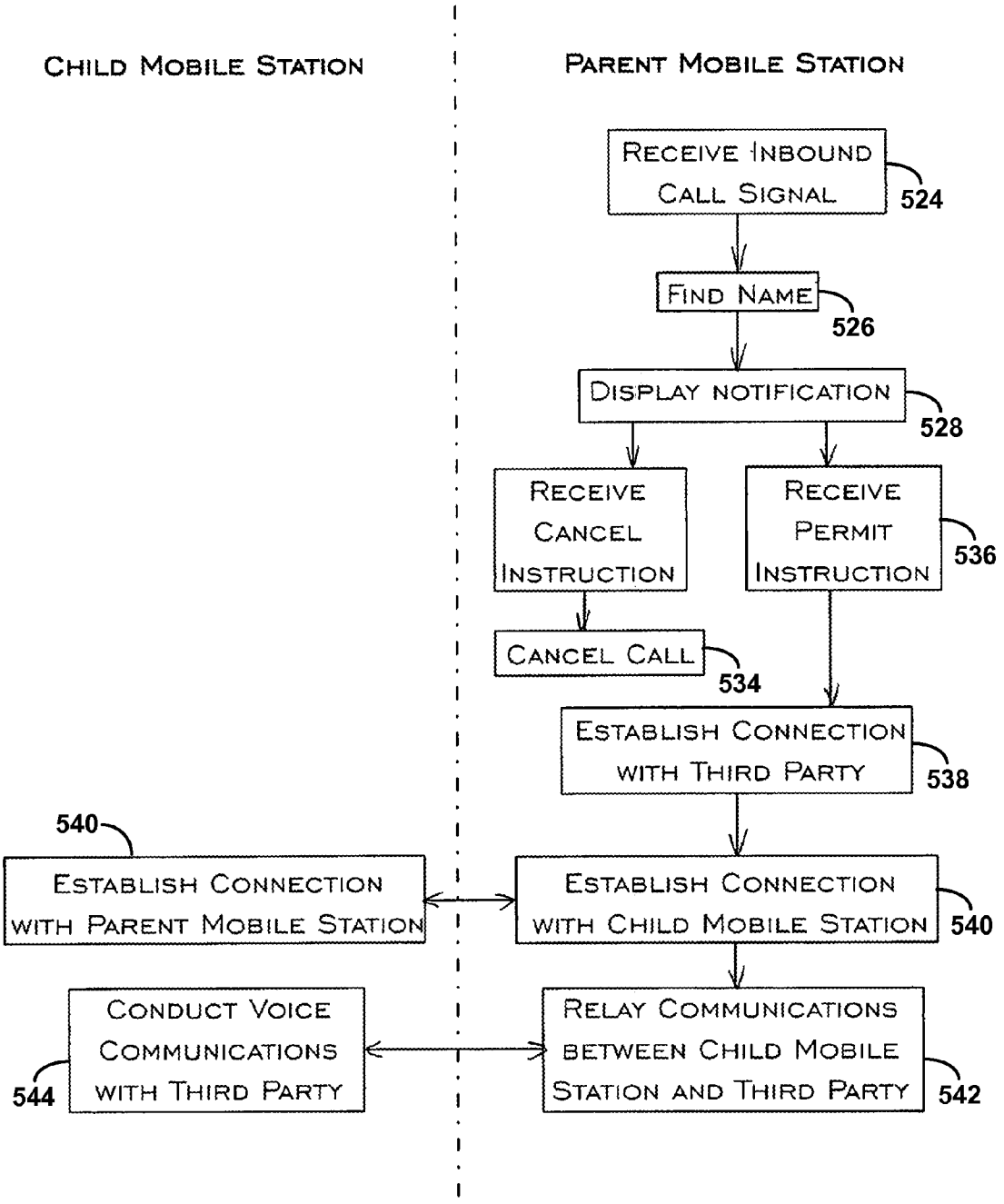

CHILD MOBILE STATION
PARENT MOBILE STATION
RECEIVE INBOUND CALL SIGNAL
524
FIND NAME
526
DISPLAY NOTIFICATION
528
RECEIVE CANCEL INSTRUCTION
RECEIVE PERMIT INSTRUCTION
536
CANCEL CALL
534
ESTABLISH CONNECTION WITH THIRD PARTY
538
540
ESTABLISH CONNECTION WITH PARENT MOBILE STATION
ESTABLISH CONNECTION WITH CHILD MOBILE STATION
540
CONDUCT VOICE COMMUNICATIONS WITH THIRD PARTY
544
RELAY COMMUNICATIONS BETWEEN CHILD MOBILE STATION AND THIRD PARTY
542

FIGURE 7

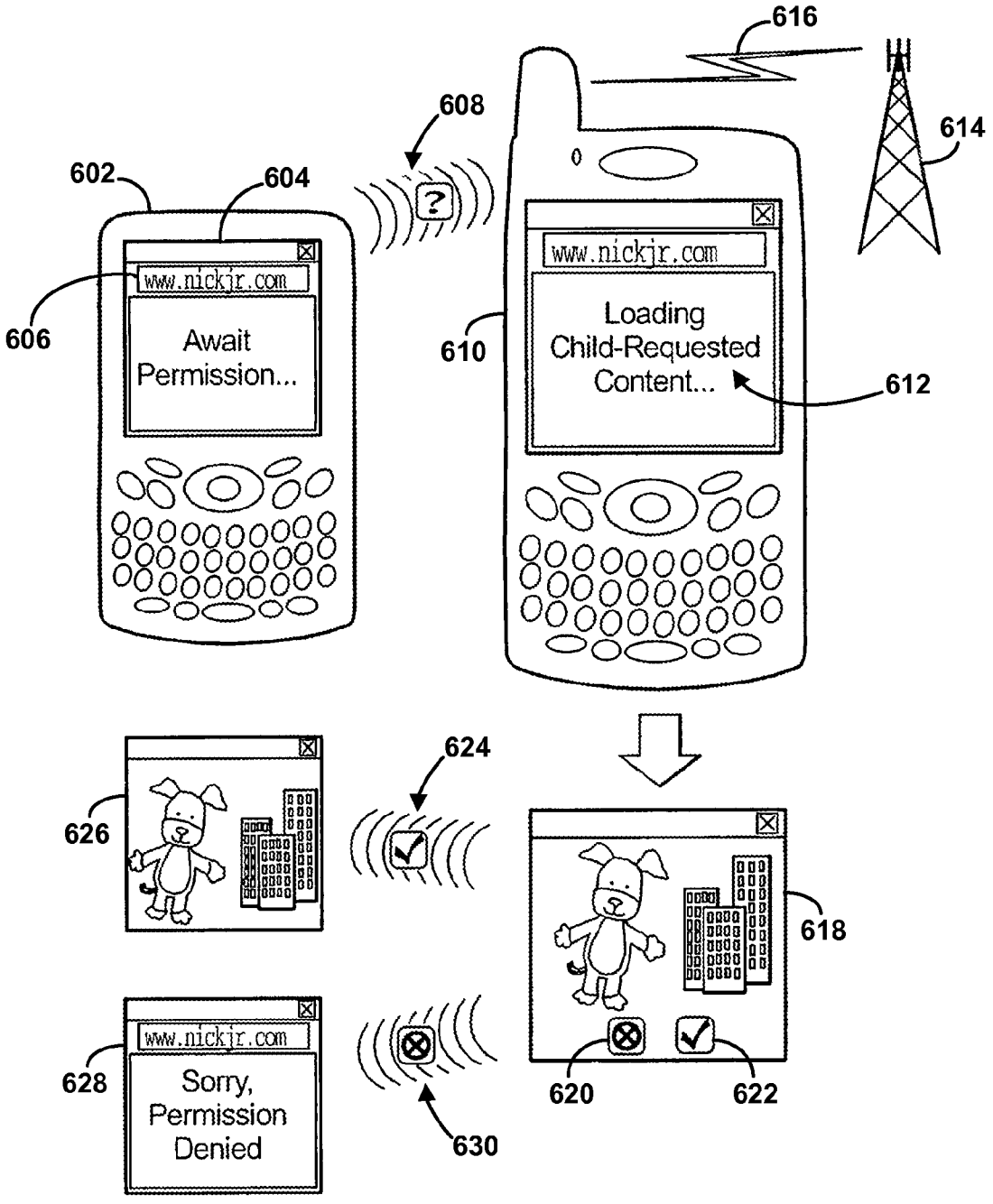

616
614
608
602
604
606
www.nickjr.com
Await Permission...
610
www.nickjr.com
Loading Child-Requested Content...
612
624
626
618
620
622
628
www.nickjr.com
Sorry, Permission Denied
630

FIGURE 8

HANDSET BASED DYNAMIC PARENTAL CONTROLS

BACKGROUND

This disclosure relates to wireless communications and, in particular, to parental control over wireless voice communications.

The instant access to global communications afforded by wireless networking has been shown to have almost immeasurable value. The technologies that allow people to access enormous amounts of information and to communicate instantly with others, though, can easily be misused. For example, it is of particular concern that children not be permitted access to adult-oriented Internet sites, and, conversely, untrustworthy adults should not be permitted to contact children over such networks. Moreover, even when children's use of network resources is proper, it can be excessive, as children are known to incur excessive connection charges, often paid by their parents.

Numerous efforts have been made to restrict children's access to various network resources. For example, software programs and proxy servers have been used to limit both the scope and duration of children's access to the Web. Child-specific mobile telephones, such as the TicTalk™ or the Firefly®, similarly allow parents to impose limitations as to who children are permitted to speak with, and for how long.

Many innovations have been made using network protocols used for voice communications. For example, voice communications may be carried using a VoIP (Voice over Internet Protocol), wherein voice communications are digitized, packetized, and sent over the Internet and/or a LAN (Local Area Network). Such communications may be set up through the use of the session initiation protocol (SIP). SIP proxy servers are available to provide client registration, authentication, and administration for VoIP endpoints. One such proxy server is the SIP-50 proxy server offered by Planet Networking & Communication.

Various network topographies have been explored for voice and data communications. For example, it has been proposed that such communications may be carried over a mesh or ad-hoc network. In such networks, data packets are wirelessly routed from node to node in a mesh. This enables nodes within the mesh to communicate with one another. Because individual nodes can act as repeaters for other nodes in the mesh, two nodes may be in communication with one another even if they are out of range of direct radio frequency (RF) communications. If one or more of the nodes in the mesh has access to an outside network, such as a public switched telephone network (PTSN) or the Internet, other nodes in the mesh may also communicate with the outside network, using the node to relay communications to and from the outside network.

Telephonic voice communications are often carried out with the use of a wireless hands-free headset. In the operation of such a headset, a user's mobile station establishes short-range wireless communications with the headset using a personal area network (PAN) protocol such as Bluetooth. Voice communications are carried wirelessly between the facilities of a telecommunications service provider and the mobile station using a wireless telecommunications protocol such as, for example, CDMA (Code-Division Multiple Access) or GSM (Global System for Mobile Communications). The mobile station relays these voice communications to a nearby headset, which includes audio transducers through which audible speech is digitized and played back.

Telecommunications equipment providers have envisioned the use of a "personal phone hub" or "personal mobile gateway" (PMG). Such a gateway serves as a single point of contact between an individual and a wireless telecommunications network. When an individual is equipped with compatible accessory nodes, such as a PDA (Personal Digital Assistant) or telephone handset or headset, the accessory nodes communicate with the wireless telecommunications network through the gateway. In this way, the compatible accessories can expend only a small amount of power communicating with the nearby gateway, rather than the larger amount of power that would be necessary to communicate directly with, for example, a more distant base transceiver station (BTS) of a wireless telecommunications network.

One partial implementation of the personal mobile gateway concept is the use of a Bluetooth-enabled mobile telephone to serve as a "wireless modem" to provide an Internet connection for a nearby Bluetooth-enabled laptop computer. To avoid unauthorized use of one's mobile telephone to establish an Internet connection, the mobile telephone generally prompts its user for authorization to accept such a connection.

In this rapidly-advancing world of wireless communications, it is expected to become ever more difficult for parents to protect and exercise control over their children who have access to such communications.

SUMMARY

A parent mobile station is provided that enables parental control over communications with at least one associated child mobile station. In a preferred embodiment, the parent mobile station receives requests for inbound and outbound calls with third parties to and from the child mobile station. In response to the requests, the parent mobile station determines whether or not to permit the inbound and outbound calls. The determination may be made automatically and/or with real-time input from a user of the parent mobile station. If a call is permitted, voice communications between the third party and the child mobile station are routed through the parent mobile station. The parent mobile station preferably communicates with the third party through a wireless telecommunications network. If a call is not permitted, the parent mobile station does not relay such communications. The child mobile station preferably communicates with the parent mobile station using a wireless local area network (WLAN) or Bluetooth protocol, and the child mobile station is preferably incapable of defeating the parental controls by establishing a direct connection to the wireless telecommunications network.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a schematic diagram of a network architecture including a wireless telecommunications network and a plurality of parent and child mobile stations.

FIG. **2** is a schematic functional block diagram of a parent mobile station.

FIG. **3** is a tree structure diagram illustrating menu options for configuring the operations of a parent mobile station.

FIG. **4** illustrates an exemplary incoming call notification, such as may be displayed on a parent mobile station.

FIG. **5** is a schematic functional block diagram of a child mobile station.

FIG. **6** illustrates a method performed by parent and child mobile stations in handling a requested outbound call.

FIG. **7** illustrates a method performed by parent and child mobile stations in handling an inbound call.

FIG. **8** illustrates a method performed by parent and child mobile stations in handling a child mobile station's request to retrieve content.

DETAILED DESCRIPTION

A. Overview of One Exemplary Embodiment

In an exemplary embodiment of a mobile communications parental control system, a parent is provided with a parent mobile station capable of communicating directly over a wireless telecommunications network, such as a CDMA network. A child is provided with a child mobile station that is not capable of communicating directly over the wireless telecommunications network. Instead, the child mobile station is capable of communicating with the wireless telecommunications network only through the parent mobile station. To communicate over the wireless telecommunications network, the child mobile station establishes two-way wireless voice communications with the parent mobile station, and the parent mobile station establishes two-way wireless voice communications with the wireless telecommunications network. The parent mobile station relays voice communications between the child mobile station and the wireless telecommunications network. In this way, the child is able to communicate wirelessly with others on, for example, the public switched telephone network (PSTN) without having a direct physical link to the wireless telecommunications network. For example, the child mobile station may not be provided with the RF circuitry necessary to establish radio communications with base transceiver stations of the wireless telecommunications network, or the child mobile station may not be associated with any active account, so that attempts to register on a wireless telecommunications network would be unsuccessful.

As communications from the child mobile station are routed through the parent mobile station, the parent is able to exercise direct control over the child's communications. In particular, it is preferred that at least a substantial portion—and preferably all—of the voice data exchanged in a connection between a child mobile station and a third party is routed through the parent mobile station. That is, the voice data itself, not merely signaling data used to set up a call, is conveyed through the parent mobile station.

The restrictions implemented by a parent mobile station may be implemented in a variety of ways. Restrictions may be preset, such that any call from the child mobile station, or any call made from an outside caller to reach the child mobile station, will not be successful in establishing a connection unless the call satisfies preset conditions. The preset conditions may include the identities of authorized and/or unauthorized telephone numbers for inbound and/or outbound calls, and the amount of time the child has spent using the mobile station (which may be reset on a periodic, e.g. monthly, basis). Restrictions may be made on a call-by-call basis, in which information about an inbound and/or outbound call is displayed on the parent mobile station, giving the parent an opportunity to permit or to block a connection. In some instances, a parent may optionally act as an "operator," speaking to an inbound caller before determining whether to relay the connection to the child mobile station. Other restrictions may be made in mid-connection. For example, if a child has exceeded the permissible amount of time using the mobile station (either cumulatively or in the present connection), the call may be disconnected, either automatically or by providing call information to the parent, who can decide whether or not to terminate the call. The parent may be provided with the capability of breaking into an active connection, for example to notify the child that he or she is exceeding his or her allotted time.

Preferably, communications between the parent and the child mobile station are conducted using a wireless local area network (WLAN) protocol, such as an IEEE 802.11 protocol, or a wireless personal area network (PAN), such as Bluetooth.

In alternative embodiments, the child mobile station may actually be capable of directly establishing communications over the wireless telecommunications network. In these embodiments, restrictions may be implemented on the child's access to the wireless telecommunications network, such as restrictions on the number of minutes the child can use the mobile station, or whitelist and/or blacklist restrictions on inbound and outbound calls. In other embodiments, the child mobile station may be able to access only particular features of a wireless telecommunications network, such as data services (e.g., an Internet connection) and/or text messaging services, such as SMS (short message service) messaging.

B. Network Architecture

An exemplary network architecture used in the implementation of a mobile communications parental control system is illustrated in FIG. **1**. A mobile switching center **10** of a wireless telecommunications service provider network **12** is in communication with the public switched telephone network **14**. One or more base station controllers (BSCs) **16**, **18** are associated with the mobile switching center **10**. Each base station controller operates one or more base transceiver stations (BTSs) **20**, **22**. Preferably, the telecommunications network provides 12 conventional wireless telecommunications services with mobile stations that do not implement the parental controls disclosed herein.

At least one parent mobile station **24** and one or more child mobile stations **26**, **28** are also provided. The parent mobile station **24** exchanges two-way voice communications with the base transceiver station **22**, and the child mobile stations **26**, **28** exchange two-way voice communications with the parent mobile station **24**.

The parent and child mobile stations may be arranged as nodes in a hub-and-spoke architecture **30**, with the parent mobile station serving as the hub. In such an arrangement, two-way voice communications between child mobile stations and the wireless telecommunications network are carried out through the parent mobile station without additional intervening nodes.

In an alternative embodiment, parent and child mobile stations are arranged in a mesh network architecture **32**, which may be an ad-hoc network. In such an embodiment, a child mobile station, such as child mobile station **34**, may communicate with the wireless telecommunications network through one or more other nodes in the mesh network, such as nodes **36** and **40**, among others. The network protocol, however, is selected such that at least one of the nodes through which a child mobile station communicates is a parent mobile station, such as parent mobile station **38**, that is associated with that child mobile station. This routing protocol may be enforced by, for example, encrypting communications to and from the child mobile station such that only a parent mobile station can decrypt those communications. In some embodiments, a mesh network architecture may be implemented concurrently with a hub and spoke architecture, and mobile stations may arrange themselves in different architectures depending on the proximity and communications capabilities of nearby mobile stations.

In an embodiment in which the parent and child mobile stations are a part of a mesh network, wherein at least one node in the mesh is capable of communicating with the service provider network, the parent mobile station itself need not have the ability to communicate directly with the service provider network (or, if the parent mobile station does have that ability, it need not make use of it).

In a preferred embodiment, communications between individual mobile stations (whether the mobile stations are communications endpoints or are relaying communications on behalf of other mobile stations) are carried out using a wireless protocol such as a Bluetooth protocol, an 802.11 protocol, or another other wireless LAN or PAN protocol. Communications conveyed between a mobile station and the service provider network (again, whether or not the mobile station is an endpoint of the communication) are preferably conveyed using a wireless telecommunications protocol such as an EVDO (Evolution-Data Optimized) or other CDMA protocol, or a GSM protocol.

Wireless communications between individual mobile stations are preferably carried out using an equivalent isotropically radiated power (EIRP) of less than one watt. Wireless communications from a mobile station to the wireless telecommunications network may be carried out using an EIRP of greater than or less than one watt, but mobile stations capable of establishing a direct link with the wireless telecommunications network preferably have the ability to transmit wireless communications at an EIRP of greater than one watt, though even with such an ability they need not always send such transmissions at more than one watt.

C. Mobile Station Functionality

1. Parent Mobile Station Functionality

In one embodiment, illustrated in FIG. **2**, a parent mobile station **42** is provided with wireless communications circuitry **44**, which preferably includes one or more RF communications circuits, for conducting wireless communications with the service provider network and with one or more other mobile stations, such as a child mobile station. The parent mobile station is provided with transducers such as a microphone **46** and a speaker **48** to convert audio signals to electrical signals, and electrical signals to audio signals, respectively. The speaker and microphone are in communication with user interface logic **54** through, respectively, a digital-to-analog converter **50** and an analog-to-digital converter **52**. A numeric or alphanumeric keypad **56** (whether physical or implemented virtually, such as on a touch screen) and display **58** are also in communication with the user interface logic. The user interface logic **54** provides device drivers for audio, visual, and tactile communications presented to and received from a user.

The parent mobile station is also provided with session control logic **60**, which may be SIP logic or another session-layer logical interface. In a parent mobile station, the session control logic is operative to establish voice communications sessions with the wireless telecommunications network and with any child mobile station. The session control logic **60** is operative to establish voice communications in response to one or more of various occurrences, such as dialing or other selection of a telephone number by a user, signaling of an inbound call from the wireless telecommunications network, or a communications request from a child mobile station, among others. The parent mobile station **42** is preferably operable to enable telephone calls between the parent mobile station and other, conventional telephones and mobile stations over a wireless telecommunications network and/or the public switched telephone network.

The session control logic **60** and the user interface logic **54** both interface with voice communication logic **62**. The voice communication logic **62** is an application-layer module supporting voice communications over sessions established by the session control logic. In some embodiments, voice communications may be encoded one way when exchanged with the wireless telecommunications network and another way when exchanged with a child mobile station. In such embodiments, the voice communication logic may include a conversion module to change between the two encoding protocols to relay voice communications between a child mobile station and the wireless telecommunications network. A network interface (not shown) may be employed to provide network layer functionality between the RF circuitry and the voice communication logic.

The parent mobile station is further provided with authority control logic **64** in communication with the session control logic **60** and/or the voice communication logic **62**, to implement real-time and predetermined access policies for access by a child mobile station. Where access policies are configurable, the parent mobile station preferably stores access policy settings locally as access policy data **66**. The authority control logic interfaces with the voice communication logic **62** and/or the session control logic to implement the access policies. For example the authority control logic **64** may instruct the session control logic **60** to disconnect or to fail to connect sessions that violate an access policy. With or without disconnection of communication sessions, the authority control logic **64** may instruct the voice communication logic **62** to discontinue relaying of communications between the wireless telecommunications network and the child mobile station, or to discontinue conversion of the encoding (including encryption, if applicable) of relayed communications, such that relayed communications are unintelligible. In instances where communication sessions are not immediately disconnected, the parent mobile station may be operative to send an audible message to the child mobile station and/or the party with whom the child mobile station is in communication, notifying of impending disconnection.

The parent mobile station is further provided with an authority control interface **68**, which provides a software interface between the user interface logic **54** and the authority control logic **64**. Through the authority control interface **68**, a user of the parent mobile station can set predetermined controls over child mobile phone use, can be notified of the child mobile station's communication activities, and/or can activate control features in real time.

In a preferred embodiment, the authority control interface **68** provides the capability to present real-time notifications to a user of the parent mobile station, to return a user's response to such notifications, to access real-time and cumulative information on child mobile station use, and to set access policies. In one such embodiment, notifications are provided as pop-up notifications on a touch screen, offering a user an opportunity to permit or to deny a communication event relating to an associated child mobile station by selection of different areas on the touch screen. The notifications preferably indicate the identity (by telephone number, name, or both) of a party attempting to call the child mobile station, or of a party that the child mobile station is attempting to call. "Contacts" data **70** stored at the parent mobile station may be retrieved to provide a name associated with the telephone number. Other information provided to a user of the parent mobile station in a notification, or at other times, may be call history information, such as a call log stored in a call log data storage **72** at the

parent mobile station. Preferably, the call log data storage **72** includes separate call log information for calls conducted with a user of the parent mobile station (parent data **74**) versus calls conducted with a user of the child mobile station (child data **76**). This separation may be a logical separation. As one example of such a logical separation, call log data for both the parent and child mobile station may be stored in a single data structure containing a plurality of entries, where each entry provides information on a single call, and wherein at least some of those entries include a field indicating whether that call was made with the parent mobile station or with the child mobile station. In this way, call log data for the parent and child is logically separate even if it is interleaved in a particular storage medium.

The authority control interface **68** preferably provides a menu-driven interface, offered on the display **58**, for accessing real-time and cumulative information on child mobile station use and for setting access policies. An exemplary menu structure for such an interface is illustrated in FIG. **3**. The menu structure illustrated in FIG. **3** is preferably implemented in addition to other, conventional menu items relating to use of the parent mobile station as a stand-alone mobile station for telephone calls between the parent mobile station and other, conventional telephones and mobile stations over a wireless telecommunications network and/or the public switched telephone network.

As illustrated in FIG. **3**, the menu structure includes high-level selections entitled "Child Communications Status" **100**, "Child Communication Setup" **200** and "Preferences" **300**. By selecting "Child Communication Status," a user can review current and/or cumulative information about the use of associated child mobile stations. Under "Child Communication Setup," a user can associate or disassociate one or more child mobile stations with the parent mobile station and provide information useful in providing communication services for the child mobile station. Under "Preferences," a user can set notification and policy settings relating to authority exercised over child mobile station communications.

Through the "Child Communications Status" menu selection, a user selects the child mobile station (selection **110**) for which it wishes to collect information. If only one child mobile station is associated with the parent mobile station, this menu level may not be necessary. For the selected child mobile station, a selection can be made to view information about any connection that is currently active at the child mobile station (selection **120**), preferably a call that is being relayed through the parent mobile station. Given the information about the connection, if any, the parent mobile station may offer the options to cancel the connection (selection **121**), to break into the connection (selection **122**, allowing the user of the parent mobile station to speak with one or both of the parties on the connection), or to listen to the connection in progress (selection **123**), subject to applicable laws.

The parent mobile station also provides the option to view call history (selection **130**), such as a call log of the child mobile station's calls (selection **131**) and/or the cumulative amount of time during which the child mobile station has had active connections (selection **132**). The call history information accessible through this interface preferably displays only child mobile station calls, while parent mobile station calls are made accessible through a different menu option. The call history information is preferably cleared according to a default or configurable protocol. For example, the call history may store information only on the last fifty (or some other number) calls, and the amount of time (which may be a number of minutes used) may be cleared at the end of each billing cycle or at another configurable interval. Call history information is preferably stored at the parent mobile station.

The parent mobile station further provides a child communications setup menu selection (selection **200**). This selection enables the mobile station to setup (selection **210**) or disable (selection **230**) associations with a child mobile station. Proximity to an un-associated child mobile station may trigger a parent mobile station to prompt its user as to whether it should associate itself with the child mobile station. If a child mobile station is identified with a hardware serial number or other difficult-to-remember designation, a user of the parent mobile station may enter a mnemonic (selection **220**) associated with the child mobile station. In an embodiment in which the parent mobile station is assigned two or more telephone numbers, menu options on the parent mobile station preferably enable selective assignment of one or more of those telephone numbers to one or more of the child mobile stations (selection **240**), such that calls to a child mobile station can be made over the public switched telephone network by dialing such an assigned telephone number, the success of such calls in establishing a connection being subject to the control exercised by the parent mobile station.

In some embodiments, each child mobile station may be associated with more than one parent mobile station, for example when a mother and father each have parent mobile stations through which a child mobile station may communicate. In such an embodiment, the menu may provide information on the other parent mobile stations, if any, associated with a particular child mobile station (selection **250**). In this way, a parent can determine whether an unauthorized holder of a parent mobile station has attempted to gain authority over and/or access to a child's mobile station.

Through a high-level menu option, the parent mobile station enables review of and changes to the access policy settings (selection **300**). For parent mobile station users uninterested in managing detailed policy settings, the mobile station may provide easy-to-use "quick preference" options (selection **310**) such as "notify of all inbound and outbound calls" (selection **311**), "screen all inbound and outbound calls" (selection **312**), and "screen all outbound calls" (selection **313**). Based on marketplace preferences, more complicated policy settings, such as those described below, may be pre-programmed as one of the "quick settings."

The parent mobile station may further provide the option to make detailed adjustments to the policy settings (selection **320**). For example, policies may be made on a telephone number by telephone number basis to distinguish between various parties that may attempt to contact the child mobile station, or that the child mobile station may attempt to contact (selection **322**). In such a case, the user can enter or select the relevant telephone number and apply the desired settings to that number. A separate selection may be provided for setting policies on handling calls to and from numbers that are otherwise not specifically listed. Alternatively, or in addition, wildcards or other regular-expression type features may identify sets of telephone numbers that should be treated identically. For example, inbound calls from telephone numbers with an "800," "866," or "888" area code may be blocked, while outbound calls to those area codes may be permitted. Calls to or from a telephone number whose area code and prefix together suggest an undesirable PBX exchange may be blocked or screened, even without identifying all extensions within the exchange.

Different policy settings may apply to inbound and outbound calls for any one telephone number. As for inbound call settings (selection **323**), a call from the selected telephone number may always be allowed (selection **324**), always be

screened (selection **325**), always be blocked (selection **326**), or the handling of the inbound call can depend on preconfigured conditions (selection **327**). Similarly, for outbound call settings (selection **336**), a call from the selected telephone number may always be allowed (selection **337**), always be screened (selection **338**), always be blocked (selection **339**), or the handling of the inbound call can depend on preconfigured conditions (selection **340**).

If the handling of a call depends on preconfigured conditions, those conditions can be configured (selections **328**, **341**) by a user of the parent mobile station. Such conditions include determining if the child mobile station has spent an excess amount of time (colloquially "too many minutes") using the telephone during the current billing cycle (selections **329**, **342**), or has made or received too many telephone calls in a period (selections **331**, **343**). In either case, the parent mobile station can preselect the threshold number of minutes (selection **330**) or number of calls (selection **332**). A user of the parent mobile station can further be provided with the option of how to handle calls from a particular number of set of numbers if the condition is true (selections **333**, **344**). For example, once a condition becomes true, the parent mobile station can be instructed to block inbound and/or outbound calls (selections **334**, **345**), or it may be instructed to screen all such calls (selections **334**, **345**) such that parent permission in response to a notification is required before a connection can be established.

As one example of policies that may be set on a parent mobile station, a child mobile station may normally be permitted to initiate or receive calls without limitation, until it reaches a threshold number of minutes used during the current billing cycle. Typically, this threshold number of minutes might be the number of minutes that can be used each billing cycle without incurring overage charges. After the threshold number of minutes is reached, though, the child mobile station may be permitted to initiate or receive calls only from a select set (or whitelist) of callers, such as family members, a babysitter, or emergency personnel, among others.

A parent mobile station preferably at least provides notification of inbound and outbound calls from the child mobile station. In some embodiments, these notifications can be configured by the user of the parent mobile station (selection **350**). In such embodiments, the user of the parent mobile station can select whether the notification will include an audible signal (selection **352**), a vibration signal (selection **353**), and/or a visual display (selection **354**). The information conveyed in the display may be configurable to include the telephone number of the calling/called party (selection **355**), the name of the calling/called party (if pre-stored or provided as Caller ID information) (selection **356**), the number of minutes used by the child mobile station (selection **357**), and the number of minutes remaining in the child mobile station's account (selection **358**), among other information.

On a parent mobile station, a user may be provided with the option of how to handle calls that are not connected with the child mobile station (selection **360**). For example, blocked calls may nevertheless be permitted to connect with a voice messaging service associated with the child mobile station (selection **362**), or alternatively such calls may be canceled altogether (selection **363**). The parent mobile station may also provide the option of enabling an operator mode (selection **361**), in which the parent speaks to one or both parties before permitting a call to be connected with a child mobile station.

A displayed notification that a call is being made to or from a child mobile station is preferably in the form of a dialog box displayed on a touch screen of the parent mobile station. Display of this notification may, depending on user settings, may be accompanied by a vibration and/or auditory alert. An exemplary notification used for screening calls is illustrated in FIG. **4**.

In the notification of FIG. **4**, a dialog box **80** displays information about an inbound caller, including the caller's name **82** and telephone number **84**. The dialog box further displays one or more command buttons **86**, **88** offering the user of the parent mobile station to permit a connection (by selecting button **88**) or to cancel the inbound call (by selecting button **86**). The notification may further include a reminder (not shown) of whether, absent timely action by the user of the parent mobile station, the call will be connected or will be canceled. An additional command button **90** may be provided that allows the parent to answer the call. In such a case, the parent, having answered the call, may subsequently be provided with the option of whether to forward the call to the child mobile station.

2. Child Mobile Station Functionality

One embodiment of a child mobile station is illustrated in FIG. **5**. The child mobile station **442** is provided with an RF communications circuit **444** for conducting wireless communications with one or more other mobile stations, such as a parent mobile station **42** and, in some embodiments, with other child mobile stations. Preferably, the child mobile station is a "Part 15 device," operated under Part 15 of the Title 47 of the Code of Federal Regulations. Preferably, the child mobile station is not capable of transmitting an equivalent isotropically radiated power (EIRP) of more than one watt.

The child mobile station **442** is provided with a microphone **446** and a speaker **448** to convert audio signals to electrical signals, and electrical signals to audio signals, respectively. The speaker and microphone are in communication with user interface logic **454** through, respectively, a digital-to-analog converter **450** and an analog-to-digital converter **452**. A keypad **456** (whether physical or implemented virtually, such as on a touch screen) and display **458** are also in communication with the user interface logic **454**. The user interface logic provides device drivers for audio, visual, and tactile communications presented to and received from a user.

The child mobile station is also provided with session control logic **460**, which may be SIP logic or another session-layer logical interface. In a child mobile station, the session control logic is operative to establish voice communications sessions with a parent mobile station and, in some embodiments, with other child mobile stations. The session control logic **460** is operative to establish voice communications in response to one or more of various occurrences, such as dialing or selection of a telephone number by a user, or notification of an inbound call, among others.

The session control logic **460** and the user interface logic **454** both interface with voice communication logic **462**. The voice communication logic **462** is an application-layer module supporting voice communications over sessions established by the session control logic. A network interface (not shown) may be employed to provide network layer functionality between the RF circuitry and the voice communication logic.

The child mobile station may also be provided with authority control logic (not shown), in communication with the session control logic and/or the voice communication logic, to implement at least some access policies governing communications by the child mobile station. For example, the authority control logic may prevent the child mobile station from communicating directly, without intervening relays, with any parent mobile station not associated with the child mobile station. Alternatively, in a multi-hop network architecture, such as some mesh or ad hoc networks, the authority

control logic may prevent the child mobile station from establishing a communications session over a path that does not include an associated parent mobile station, and/or the authority control logic may prevent the child mobile station from accepting data packets sent or over a path that does not include the associated parent mobile station. Although a parent mobile station bears the primary responsibility for enforcing access policies, the authority control logic of a child mobile station may mirror at least some of the access policy settings enforced by the parent mobile station. For example, the authority control logic of the child mobile station may be provided with information as to the number of minutes the child mobile station is permitted to use in each period. In this way, the user of a child mobile station attempting to make a call may be informed by the mobile station that he has exceeded the threshold number of minutes and that the call is not likely to be permitted. As a result, the user of the child mobile station is less likely to place demands on the parent mobile station, and its user, when a call is less likely to be permitted. The authority control logic may further report the outcome of attempted outbound calls from the child mobile station. For example, the authority control logic may report that an attempted call was blocked by parental controls, thereby discouraging a second attempt by the user of the child mobile station, who otherwise may have thought that the call failed because of network problems.

In some embodiments, the parent and child mobile stations may have identical hardware, but may be configured differently such that, for example, the child mobile station is permitted to communicate with the wireless telecommunications network only through an associated parent mobile station. These different configurations may be provided by, for example, different SIM or USIM ([Universal] Subscriber Identity Module) cards, different software, different information provided during provisioning, and/or other options.

D. An Exemplary Parental Control Method

1. An Outbound Call Method

As illustrated in FIG. **6**, the user of a child mobile station dials a telephone number associated with a third party (step **500**). The child mobile station transmits the telephone number to a parent mobile station in a call request (step **502**). The parent mobile station receives the call request, including the telephone number (step **504**). The parent mobile station then searches through a local database or other contact information to identify a name associated with the dialed telephone number (step **506**). The parent mobile station displays a notification of the attempted call to the user of the parent mobile station (step **508**). This notification preferably includes the dialed telephone number and, if available, the associated name of the third party. If no name is associated with the dialed number, the notification preferably indicates that no associated name is known.

The parent mobile station awaits from its user a timely instruction, which may be provided through command button options provided in the notification. Upon an instruction to cancel the outbound call (step **510**), the outbound call is not permitted to be connected, and the parent mobile station informs the child mobile station that the call is canceled (step **514**). Upon an instruction to permit the outbound call (step **512**), the parent mobile station establishes a connection with the third party (through the wireless telecommunications network) (step **516**) and with the child mobile station (over, preferably, a wireless LAN, PAN or Bluetooth connection) (step **518**). Having set up communications with the third party and with the child mobile station, the parent mobile station relays voice communications between the called party and the child mobile station (step **522**), such that the third party and the user of the child mobile station can communicate with one another over a voice connection (step **520**). Preferably, the voice connection between the third party and the child mobile station approach a quality of service similar to that of conventional cellular telephonic communications. In different embodiments, the relaying of voice communications may take different forms. For example, in a VoIP system, the parent mobile station may operate as an IP proxy server for the child mobile station. The third party may or may not be made aware that it is communicating through a parent mobile station.

If no timely response is entered at the parent mobile station, the parent mobile station may perform a default action, which in different embodiments and/or different configurations may result either in the call being canceled or connected. The parent mobile station may determine that no timely response is received when, for example, no response is entered during the passage of a predetermined amount of time, such as 15 seconds, after the notification is provided.

2. An Inbound Call Method

In an exemplary method, a parent mobile station is used to exercise authority over inbound calls to an associated child mobile station. An outside caller, such as a third party calling over the public switched telephone network, dials a telephone number associated with a child mobile station. The public switched telephone network signals the wireless telecommunications network associated with the parent mobile station, and the wireless telecommunications network signals the parent mobile station of the inbound call.

As illustrated in FIG. **7**, the parent mobile station receives the signal indicating an inbound call (step **524**). Preferably, the signal includes information identifying the telephone number of the third party. The parent mobile station then searches through a local database or other contact information to identify a name associated with the third party caller's telephone number (step **526**), and/or the parent mobile station receives CallerID information naming the caller (not shown). The parent mobile station displays a notification of the inbound call to the user of the parent mobile station. This notification preferably includes the third party caller's telephone number and, if available, the associated name. If no name is associated with the third party caller's telephone number, the notification preferably indicates that no associated name is known.

The parent mobile station awaits from its user a timely instruction, which may be provided through command button options provided in the notification. Upon an instruction to cancel the inbound call (step **530**), the inbound call is not permitted, e.g. the parent mobile station does not pick up the inbound call (step **534**). In different embodiments, or in response to different configurations, the child mobile station may or may not be informed that an inbound call was attempted, and the third party caller may or may not be notified that the call was canceled because of parental controls.

Upon an instruction to permit the inbound call (step **536**), the parent mobile station establishes communications with the third party (step **538**) and with the child mobile station (step **540**). Having set up communications with the third party caller and with the child mobile station, the parent mobile station relays communications between the two (step **542**), such that the third party and the user of the child mobile station can carry out voice communications with one another (step **544**).

If no timely response is entered at the parent mobile station, the parent mobile station may perform a default action, which in different embodiments and/or different configurations may result either in the call being canceled or connected.

E. An Exemplary Multimedia Access Method

In the exemplary method illustrated in FIG. **8**, a child mobile station **602** is provided with Web browser software with an open Web browser window **604**. In a text box **606** of the Web browser window **604**, a user of the child mobile station **602** enters a URL (uniform resource locator) of a Web site the child user would like to visit. The child mobile station **602** wirelessly sends this URL in a request **608** to an associated parent mobile station **610**, preferably using a Bluetooth or wireless LAN link. A notification **612** is displayed for the user of the parent mobile station **610**. The parent mobile station establishes a wireless data link **616** with a service provider **614**, and the parent mobile station retrieves, from a content provider (such as a Web server, among other examples) the content addressed by the URL of the request.

Once the parent mobile station **610** has retrieved the child-requested content, the content is displayed in a browser window **618** of the mobile station. In this way the parent user can view the content, such as a Web page, before it is delivered to the child mobile station. The browser window **618** of the mobile station presents input options to the parent user, such as command buttons, to determine whether to block the content (button **620**) or to approve the multimedia content for forwarding to the child mobile station (button **622**).

If the content is approved, the content is sent by the parent mobile station **610** over a wireless link **624** to the child mobile station **624** and displayed in a browser window **626** (which may be a refreshed version of the browser window **604**). If the content is not approved, the parent mobile station may inform the child mobile station **604** over a wireless link **630** that the content is not approved, or the parent mobile station may simply decline to provide any data to the child mobile station, which by default prevents successful viewing of the content. The child may be informed in a browser window **628** (which may be a refreshed version of the browser window **604**) that permission to view the content has been denied.

In the example of FIG. **8**, the parent mobile station **610** operates as a proxy server for the child mobile station **602**, except that the parent mobile station displays selected content to a human user before such content is forwarded to the child mobile station, allowing the human user to make a real-time decision concerning access to the content. In a preferred embodiment, not all content requested by the child mobile station is required to be previewed in this way, rather, only requests relating to "blacklisted" content, or requests not relating to "whitelisted" content are displayed for preview by a human operator of the parent mobile station. More complex pattern matching, Bayesian, or other algorithms may be used to determine which requests will or will not be subject to preview at the parent mobile station. A determination as to what content will be previewed may be made based on the URL of the request (e.g., the URL may be consistent with adult-only sites), based on the data sent in response to the request (e.g., a JPEG file with a high percentage of flesh-tone pixels, or the presence of one or more keywords suggesting objectionable content), or on some weighted combination of the two.

If content at a particular URL or within a particular domain has previously been previewed and allowed by the parent user, subsequent attempts by the child user to view the content may proceed without requiring preview. Conversely, if such content has previously been previewed and blocked by the parent user, subsequent attempts by the child user to view the content may be blocked without requiring a preview. In some embodiments, a parent's response to particular previewed content may be supplied to an adaptive learning algorithm that determines whether similar content (e.g., content at the same or similar URLs, or content including similar characteristic words and phrases) will require parental previewing in the future. Inferences made from a parent user's previous responses may be just one factor among others for determining whether particular content requires previewing.

Some embodiments may operate as described in FIG. **8** with the addition of other command buttons, such as a button (not shown) displayed in the preview window **618** that corresponds to a "Not Now" choice. In such an embodiment, the selection of the "Not Now" button prevents the child user from accessing the requested content but does not mark the content as being inappropriate. For example, a parent user can select the "Not Now" button to prevent a child user from accessing a sports or entertainment Web site when the child user is supposed to be doing homework, but the URL of the requested Web site will not be "blacklisted," and it will not be provided to the adaptive learning algorithm as an example of inappropriate content. In such embodiments, the "Not Now" button may be paired with a "Never Allow" button (not shown), which the parent can use to identify content considered inappropriate. Content marked with the "Never Allow" button need not be previewed to the parent user in the future.

It is to be understood that a single Web page may be comprised of dozens of embedded resources, each addressed by a different URL. Preferably, the parent mobile station also retrieves these embedded resources for display to its human user. When the Web page as a whole is approved for viewing by the user of the parent mobile station, this approval may be deemed effective for each of the displayed resources. Because the embedded resources have been pre-fetched by the parent mobile station, any delay introduced by the need for human intervention at the parent mobile station is offset at least in part by the fact that the child mobile station can quickly retrieve needed resources locally from the parent mobile station, rather than over a distant network.

Although the example of FIG. **8** was described in terms of Web pages, it should be understood that other content retrievable over a network can be subjected to similar parental preview and control, including multimedia content. For example, when a child user attempts to download an MP3 or other audio file, the audio may be pre-played at the parent mobile station before the file is allowed to be forwarded to the child mobile station. As used herein, the verbs "preview" and "display" are not intended to be limited only to content that can be seen visually.

F. Alternative Embodiments

The modules, logic, and data storage elements described herein may be implemented through hardware, software, or a combination of hardware and software. Although the above examples help to elucidate the invention, other examples or variations on these examples are possible, and consequently the scope of the invention is limited only by the following claims.

The invention claimed is:

1. A system comprising a parent mobile station, wherein the parent mobile station comprises:

wireless communication circuitry capable of communicating (i) with a third party over a wireless telecommunications network and (ii) with an associated child mobile station;

a display;

authority control logic operative (i) to detect a request by the associated child mobile station to establish voice communications with a third party, the request including a telephone number; and (ii) to determine whether to permit or deny the voice communications with the third party; and

voice communication logic operative, in response to a determination by the authority control logic to permit the voice communications, to relay the permitted voice communications between the third party and the child mobile station through the wireless communication circuitry the system further comprising the associated child mobile station, the child mobile station comprising (a) a keypad, (b) a microphone, (c) a speaker, and (d) child wireless communication circuitry capable of communicating with the parent mobile station,

the child mobile station being operable, in response to a keypad input, to send to the parent mobile station the request to establish voice communications with the third party, the request including the telephone number of the third party, and

the child mobile station further being operable to enable a voice connection between a user of the child mobile station and the third party, using the microphone and speaker as transducers, the voice connection being relayed through the parent mobile station.

2. The system of claim **1**, wherein the child mobile station is a Part 15 device.

3. The system of claim **1**, wherein the child wireless communication circuitry is not capable of transmitting radio signals at greater than one Watt equivalent isotropically radiated power.

4. The system of claim **1**, wherein the child mobile station is not capable of direct communications with a base transceiver station.

5. The system of claim **1**, wherein the child mobile station and the parent mobile station are operative to communicate with one another using a Bluetooth protocol.

6. The system of claim **1**, wherein the child mobile station and the parent mobile station are operative to communicate with one another using a wireless LAN protocol.

7. The system of claim **1**, wherein the authority control logic is operative, in response to the request by the child mobile station to establish voice communications with the third party, (i) to cause a notification identifying the third party to be displayed on the display, wherein the notification includes a request for a user input; and (ii) to make the determination of whether to permit or deny the voice communications with the third party based on the user input.

8. The system of claim **7**, wherein the parent mobile station includes contacts data associating names and telephone numbers, and wherein the notification identifying the third party includes a name of the third party.

9. The system of claim **1**, wherein the parent mobile station further comprises (a) a parent mobile station keypad, (b) a parent mobile station microphone, and cc) a parent mobile station speaker,

the parent mobile station further being operable, using the parent mobile station microphone and parent mobile station speaker as transducers, to enable a voice connection between a user of the parent mobile station and the third party.

10. A system comprising a parent mobile station, wherein the parent mobile station comprises:

wireless communication circuitry capable of communicating (i) with a third party over a wireless telecommunications network and (ii) with an associated child mobile station;

a display;

authority control logic operative (i) to detect a request by the associated child mobile station to establish voice communications with a third party, the request including a telephone number; and (ii) to determine whether to permit or deny the voice communications with the third party; and

voice communication logic operative, in response to a determination by the authority control logic to permit the voice communications, to relay the permitted voice communications between the third party and the child mobile station through the wireless communication circuitry,

wherein the parent mobile station further comprises (a) a parent keypad, (b) a parent microphone, and (c) a parent speaker, the parent mobile station further being operable, in response to a keypad input, using the microphone and speaker as transducers, to enable a voice connection between a user of the parent mobile station and the third party; and

wherein the system further comprises the associated child mobile station, the child mobile station comprising (a) a child keypad, (b) a child microphone (c) a child speaker, and (d) child wireless communication circuitry capable of communicating with the parent mobile station the child mobile station being operable, in response to a keypad input, to send to the parent mobile station the request to establish voice communications with the third party, the request including the telephone number of the third party,

wherein the system is operable, in response to a determination by the authority control logic to permit the voice communications, to enable a voice connection between a user of the child mobile station and the third party, using the microphone and speaker as transducers, the voice connection being routed through the parent mobile station.

11. A system comprising a parent mobile station, wherein the parent mobile station comprises:

wireless communication circuitry capable of communicating (i) with a content provider over a wireless telecommunications network and (ii) with an associated child mobile station;

a display;

authority control logic operative (i) to detect a request by the associated child mobile station to retrieve content from the content provider; (ii) to cause the requested content to be retrieved by the parent mobile station; (iii) to cause the requested content to be displayed on the parent mobile station; (iv) to cause a request for user input regarding the requested content to be displayed on the parent mobile station; and (v) based on the user input, to (a) cause the wireless communication circuitry to send the content to the child mobile station, or to (b) prevent the content from being sent to the child mobile station.

12. The system of claim **11**, further comprising the associated child mobile station, the child mobile station comprising:

a display;

child wireless communication circuitry capable of communicating with the parent mobile station;

the child mobile station being operable, in response to user input, to send to the parent mobile station the request to retrieve content from the content provider;

the child mobile station further being operable to display the content if the content is sent to the child mobile station by the parent mobile station.

13. The system of claim **12**, wherein:

the child mobile station and the parent mobile station are operable to communicate with one another through a protocol selected from the group consisting of a wireless local area network protocol and a wireless personal area network protocol; and

wherein the child mobile station is not operable to communicate using a wireless telecommunication protocol.

14. A method of operating a parent mobile station, wherein the parent mobile station is associated with at least one child mobile station, the method comprising:

receiving, from a wireless telecommunications network, a plurality of signals identifying inbound calls;

for at least a first one of the inbound calls, determining that the first inbound call is destined for the parent mobile station, and thereafter enabling the parent mobile station to connect with the first inbound call;

for at least a second one of the inbound calls, determining that the second inbound call is destined for the child mobile station, determining that the child mobile station is permitted to receive the second inbound call, and thereafter relaying voice communications between the child mobile station and the wireless telecommunications network, through the parent mobile station, to connect the second inbound call with the child mobile station; and

for at least a third one of the inbound calls, determining that the third inbound call is destined for the child mobile station, and determining that the child mobile station is not permitted to receive the third inbound call.

15. The method of claim **14**, further comprising, after determining that the child mobile station is not permitted to receive the third inbound call, canceling the third inbound call.

16. The method of claim **14**, further comprising, after determining that the child mobile station is not permitted to receive the third inbound call, enabling the parent mobile station to connect with the third inbound call.

17. The method of claim **14** wherein determining that the child mobile station is permitted to receive the second inbound call includes displaying, on the parent mobile station, information about the second inbound call, and thereafter identifying a user response, the user response being selected from the group consisting of (i) taking action to permit the call and (ii) not taking action to cancel the call.

18. The method of claim **14** wherein determining that the child mobile station is not permitted to receive the third inbound call includes displaying, on the parent mobile station, information about the third inbound call, and thereafter identifying a user response, the user response being selected from the group consisting of (i) taking action to cancel the call and (ii) not taking action to permit the call.

19. The method of claim **14**, further comprising:

receiving, from the child mobile station, a plurality of requests to make outbound calls, at least some of those requests including a telephone number;

for at least a first one of the requests including a first telephone number, determining that the child mobile station is permitted to make a first outbound call, and thereafter routing voice communications between the child mobile station and a third party at the first telephone number; and

for at least a second one of the requests including a second telephone number, determining that the child mobile station is not permitted to make a second outbound call.

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